

said casing is defined into two chambers, a plasma generation chamber provided with said plasma generation means and a substrate treatment chamber provided with said substrate support table;

said substrate treatment chamber and said plasma generation chamber are connected through one or more plasma nozzles; and

at least one of said plasma nozzles is made a hollow electrode discharge generation area.

4. (Amended) A surface treatment apparatus according to claim 1, wherein an opening width $W(1)$ of the smallest portion on at least one of the plasma nozzles is set in a range satisfying either of $W(1) \leq 5L(e)$ or $W(1) \leq 20X$:

where $L(e)$ is an electron mean free path in respect to atom or molecular species (active species) of the smallest diameter among raw material gas species and electrically neutral atom or molecular species (active species) produced there from by decomposition, under the desired plasma generation conditions; and

X is a thickness of a sheath layer generated under the desired plasma generation conditions.

5. (Amended) A surface treatment apparatus according to claim 1, wherein said plasma nozzle forms a substantially continuous and elongated slit shape that can be drawn with a single stroke of the brush.

19. (Amended) A surface treatment apparatus of one of claims 1 and 4-12, wherein said apparatus comprises potential applying means for applying a desired potential to the substrate.